

## UOIT & Hydrofuel Inc. - Diesel Generator Alternatives

### Conclusions of UOIT's Diesel Generator Alternatives Report:

The following remarks are noted based on the calculations and investigations.

- As the global warming and energy issues become important topics to be considered for the future of remote communities, alternative solutions for power and heat generation need to be investigated.
- Currently, diesel generators running on diesel are utilized for Northwestern Ontario remote communities. This is one of the most expensive and environmentally damaging option.
- First Nations request and propose a 1,500 km power transmission line to the remote communities instead of diesel generators which is a high cost investment.
- The significance of distributed power generation is emphasized in many studies throughout the world. Hence, producing power and heat via stand-alone facilities are being encouraged by the governments and decision makers.
- As an alternative and sustainable fuel, ammonia, can be utilized in the diesel generators by minor modifications. Ammonia has no greenhouse gas emission during utilization in the diesel generators. Hence, it is the most environmentally benign fuel among other alternatives.
- Transportation and storage of ammonia is already available and well-known since it is the second largest produced chemical in the world. This implies that instead of diesel, ammonia can easily be transported and stored.
- Ammonia can be produced on-site using renewable energy resources such as wind, solar and hydropower which are already available in these remote communities. This brings minimum transportation cost. However, diesel needs to be transported for long distances.
- The operation of diesel engines with fuel ammonia has the lowest cost based on the current market prices. Considering the technology development of ammonia production, the cost of ammonia will continue to decrease which will bring additional reductions in total cost.
- Production and utilization of ammonia in diesel generators have significantly lower environmental impacts in terms of climate change and global warming.
- As a result, ammonia usage in remote communities for power and heat production will bring significant cost and environmental benefits together with public satisfaction.

### Summary of the Proposed Project

• Connection of Remote First Nation Communities in Northwest Ontario •

